

**Amendments to the Specification:**

Please replace the paragraph beginning at page 1, line 11 with the following amended paragraph:

--Flexographic printing plates are a particular form of ~~resist~~ resists imageable material. Flexographic printing plates are generally used to form relief printing surfaces that find general use in letterpress printing, particularly on surfaces which are soft and easily deformable, such as packaging materials, e.g., cardboard, plastic films, etc. Flexographic printing plates can be prepared from photopolymerizable compositions, particularly flexible or elastomeric polymeric compositions including acrylic resins, urethane resins, epoxy resins, and the like including resins described in U.S. Patent Nos. 4,323,637 and 4,427,749. The photopolymerizable compositions generally comprise an elastomeric binder, at least one monomer and a photoinitiator. Many photoresist elements such as flexographic imageable plates may have a photopolymerizable layer interposed between a support and a coversheet or multilayer cover element. Upon imagewise exposure of a negative-acting photosensitive medium to actinic radiation, polymerization, and hence, insolubilization of the photopolymerizable layer occurs in the exposed areas. Treatment with a suitable solvent removes the unexposed areas of the photopolymerizable layer, leaving a printing relief which can be used for flexographic printing. An alternative composition is described in U.S. Patent No. 5,175,072 in which the flexographic printing plate does not require a liquid development step, but rather the unhardened composition is heated while in contact with an absorbent layer or sheet, and the unexposed photosensitive coating layer is softened and absorbed by the ~~absorbant~~ absorbent sheet. In this manner, there is no need for contacting the printing plates with solvents or having liquid effluent from the imaging process.--

Please replace the paragraph beginning at page 2, line 1 with the following amended paragraph:

--Imagewise exposure of a photosensitive element requires the use of a phototool or photomask ~~which~~ that is a layer having imaging radiation transmissive (e.g., clear) and imaging radiation opaque areas that overlay the photopolymerizable layer. The phototool prevents

exposure and polymerization of the photosensitive layer behind the opaque areas. The phototool allows exposure of the negative-acting photosensitive layer to radiation in the clear areas so that these areas polymerize and will remain on the support after the development step. The phototool is usually a photographic negative image (even a true photographic negative) of the desired printing image. If corrections are needed in the final image, a new negative usually must be made. This is a time-consuming and expensive process. In addition, the phototool may change slightly in dimensions due to changes in temperature and humidity. Thus, the same phototool, when used at different times or in different environments, may give different results and could cause registration problems between different layers (e.g., different color layers) applied to the final printed sheet. Thus, it would be desirable to eliminate the phototool by directly recording or writing information onto a photosensitive element, e.g., by means of a laser beam. The image to be formed on the photosensitive surface could be translated into digital information and the digital information used to place the laser spot for imaging on the photosensitive layer or surface. The digital information could even be transmitted from a distant location, as over fiber optic or electrical transmission systems. Corrections could be made easily and quickly by adjusting the digitized image prior to exposing a photosensitive element. In addition, the digitized image could be either positive or negative, eliminating the need to have both positive-working and negative-working photosensitive materials, or positive and negative phototools. This direct writing format of exposure saves storage space, provides greater convenience to the worker and, thus, reduces cost. Another advantage of direct writing or direct laser addressed exposure to a photosensitive surface is that registration can be precisely controlled by machine during the imaging step, while the physical placement of a phototool before flood exposure through the phototool introduces another variable into the location of the image on the photosensitive surface. Digitized imaging without a phototool also is particularly well-suited for making seamless, continuous printing forms. In general, it has not been very practical to use lasers to image the type of elements that are used to prepare flexographic printing plates. The elements have low photosensitivity and require long exposure times even with high-powered lasers. In addition, most of the photopolymerizable materials used in these elements have their greatest sensitivity in the ultraviolet range. While UV lasers are known, economical and reliable UV

lasers with high power are generally not available. However, non-UV lasers that are relatively inexpensive, and which have a useful power output and which can be utilized to form a mask image on top of flexographic printing elements are commercially available.--

Please replace the paragraph beginning at page 9, line 22 with the following amended paragraph:

--The permeability reduces local or general crosslinkability or polymerizability of the elastomeric composition by a phenomenon that is usually sought to be avoided, oxygen poisoning or oxygen suppression of polymerization, particularly with ethylenically unsaturated compositions, and especially acryloyl or methacryloyl (acrylics, generically) polymerizable units. In the practice of the present invention, the penetration of the elastomeric layer has been found to be beneficial in the formation of higher quality highlight dots, as described in further detail herein. There are a number of different structures and mechanisms that can be used to ~~effect~~ affect his benefit.--

Please replace the paragraph beginning at page 10, line 13 with the following amended paragraph:

--For example, a photoresponsive dye-bleaching process may be used, such as where the original dye is a dye that strongly absorbs UV radiation, but is bleached so that it then transmits UV radiation. For use by operators, it is preferred that the change in UV transmissivity is visually observable, but that is not functionally necessary. Therefore, a UV absorbing dye can be used alone or in combination with a visible UV absorbing dye or visible non-UV-absorbing dye that bleaches during imagewise exposure to identify the pattern of exposure. A visible dye may be used alone, with the visible dye also having to strongly absorb in the UV, such as many IR dyes and visible dyes with absorption peaks or ranges in the UV. The bleaching agent may be any photogenerated bleaching or oxidizing or reducing agent (as is needed for the modification of the absorption properties of the dye), such as triarylsulfonium salts (e.g., with boron tetrafluoride, hexafluoroantimonate, perfluorocyclohexane [PECHS], or other active anions),

diaryliodonium salts, diazonium salts with active anions, biimidazoles, and other well known photoinitiated bleaching agents. By having this bleachable system in the photomask layer with uniform permeability, the mask function of the layer can be positively or negatively ~~effected~~ affected by exposure to radiation to which the bleaching agent is actinically sensitive. For example, the triarylsulfonium salts are naturally sensitive to the UV or can be sensitized to the visible, and exposure to UV to bleach them will contemporaneously expose the photopolymerizable composition.--

Please replace the paragraph beginning at page 11, line 9 with the following amended paragraph:

--A photosensitive printing element for preparing flexographic printing plates comprises at least the following layers in the order of (by the term "order of" is meant that the layers, with ~~our~~ or without intermediate layers, such as antihalation layers, adhesion layers, etc., the layers recited appear in the order described):

- (a) a support,
- (b) a photopolymerizable layer comprising an elastomeric composition sensitive to non-infrared actinic radiation, the layer being soluble, swellable or dispersible in a liquid developer prior to exposure to the non-infrared actinic radiation,
- (c) at least one layer comprising an infrared radiation sensitive thermographic material which provides an image density sufficient to slow, retard or prevent polymerization, usually an optical density of at least about 3.0 or greater at the wavelengths in the electromagnetic region of the non-infrared radiation sensitivity upon exposure to infrared laser radiation.

The photosensitive element may have layer (c) as at least one layer that provides a ~~sufficient~~ sufficient image density when exposed to infrared radiation between about 700 and 1100, preferably between 750 and 850 nm at a fluence of 1.0 Joules/cm<sup>2</sup> (or less) for less than 1 minute.--

Please replace the paragraph beginning at page 14, line 15 with the following amended paragraph:

--Alternatively the ~~infra-red~~ infrared sensitive layer can be coated onto a clear support using the methods described above, and dried. A liquid photopolymerizable elastomeric composition is coated onto the ~~infra-red~~ infrared sensitive layer and a further support applied to the topmost layer. The ~~infra-red~~ infrared sensitive layer is then imaged by laser. Then the light sensitive elastomeric layer is polymerized in the non-opaque areas of the mask. The bottom support is removed from the coating and the non-image areas of the elastomeric layer are removed by methods described earlier.--

Please replace the paragraph beginning at page 15, line 26 with the following amended paragraph:

--FIG. 2(a) shows thermally imageable photomask layer 21 integrally coated on photopolymerizable layer 22. Thermally imageable photomask layer 21 is chosen to be UV transmissive. UV transmissive base layer 23, typically, but not exclusively, of polyester terephthalate (PET), polyethylene naphthalate, cellulose triacetate, or other commercial film base may be provided to form a dimensionally stable base. Thermally imageable photomask layer 21 is sensitive to a selected range of infrared wavelengths. This range may be selected to match the wavelength of a laser to be used to image thermally imageable photomask layer 21. Ultraviolet photopolymerizable layer 22 may be any individual ~~photopolymer~~ photopolymer or a combination of photopolymers that are polymerizable by actinic radiation. Preferably the photopolymer of ultraviolet photopolymerizable layer 22 is optimally sensitive to radiation of wavelengths between 410 and 100 nm, which range does not overlap with the sensitivity range of thermally imageable photomask layer 21. Various removable cover sheets may be provided over the top of thermally imageable photomask layer 21. Thermally imageable layer 21, the composition of which will be described in greater detail below, has the property that its opacity

to ultraviolet radiation changes in response to illumination by laser light of the wavelength range to which it is sensitive.--

Please replace the paragraph beginning at page 17, line 7 with the following amended paragraph:

--The materials for, and thickness of, thermally imageable photomask layer 21 may also be chosen to obtain the appropriate balance among at least the three factors of oxygen permeation through un-illuminated mask window 38, 28 oxygen permeation through mask region 27 and the ultraviolet transmissivity of thermally imageable photomask layer 21.--

Please replace the paragraph beginning at page 17, line 11 with the following amended paragraph:

--In the preferred embodiment described by Fig 2(a) – FIG.2(f), it is deemed likely that the structure of thermally imageable photomask layer 21 is changed in various ways, one of these being the creation of cavities or bubbles in the material due to the heat produced in the material during illumination by the laser. However, while these arguments are presented as plausible explanations for the results obtained with the present invention, the invention is not to be seen as limited by these arguments, its merit being in the result obtained ~~from~~ from the control of gas permeation, the most suspect gas being oxygen, but not exclusively so.--

Please replace the paragraph beginning at page 18, line 10 with the following amended paragraph:

--Additionally the thermosensitive material could be imaged prior to its application to the photopolymerizable elastomeric composition. In both methods the ~~infra-red~~ infrared sensitive layer should not be soluble or swellable in the elastomeric composition. The photosensitive element and process of the invention combine the convenience and sensitivity of infrared laser

imaging with conventional photopolymerizable compositions to produce flexographic printing plates.--

Please replace the paragraph beginning at page 19, line 24 with the following amended paragraph:

--Alternatively, as described by Martens, U.S. Patent No. 5,175,072, the photopolymerizable layer can when contacting the image area with an ~~absorbant~~ absorbent layer which can absorb ~~unirradiated~~ un-irradiated composition when it has been heated to between 40° and 200°C, heating said composition layer so that it is at a temperature between 40° and 200°C while in contact with said absorbent layer, said temperature being sufficiently high to enable said composition in ~~unirradiated~~ un-irradiated areas to flow into said absorbent layer, allowing at least 75% of said composition in ~~unirradiated~~ un-irradiated areas in contact with said absorbent layer to be absorbed by said absorbent layer, and removing said absorbent layer and said at least 75% of composition from ~~unirradiated~~ un-irradiated areas from said flexible substrate.--

Please replace the paragraph beginning at page 20, line 3 with the following amended paragraph:

--The photopolymerizable layer can contain a single monomer or mixture of monomers ~~which~~ that must be compatible with the binder to the extent that a clear, non-cloudy photosensitive layer is produced. Monomers that can be used in the photopolymerizable layer are well known in the art. Examples of such monomers can be found in Chen U.S. Patent No. 4,323,636; Fryd et al., U.S. Patent No. 4,753,865; Fryd et al., U.S. Patent No. 4,726,877; and Feinberg et al., U.S. Patent No. 4,894,315. It is preferred that the monomer be present in at least an amount of 5% by weight of the photopolymerizable layer. The photoinitiator can be any single compound or combination of compounds ~~which~~ that is sensitive to non-infrared actinic radiation, generating free radicals ~~which~~ that initiate the polymerization of the monomer or monomers without excessive termination. The photoinitiator is generally sensitive to visible or ultraviolet radiation, preferably ultraviolet radiation. It should be thermally inactive at and

below 185°C. Examples of suitable photoinitiators include the substituted and unsubstituted polynuclear quinones, onium salts (e.g., diaryliodonium salts, triarylsulfonium salts, s-triazines, biimidazoles, photosensitive complexed metals and the like. Examples of suitable systems have been disclosed in Gruetzmacher U.S. Patent No. 4,460,675 and Feinberg et al., U.S Patent No. 4,894,315. Photoinitiators are generally present in amounts from 0.001% to 10.0% based on the weight of the photopolymerizable composition. The photopolymerizable layer can contain other additives depending on the final properties desired. Such additives include sensitizers, rheology modifiers, thermal polymerization inhibitors, tackifiers, plasticizers, colorants, antihalation materials, acutance dyes, antioxidants, antiozonants, or fillers. The thickness of the photopolymerizable layer can vary over a wide range depending upon the type of printing plate desired. For so called "thin plates" the photopolymerizable layer can be from about 20 to 50 mils (0.05 to 0.13 cm) in thickness. Thicker plates will have a photopolymerizable layer up to 100-250 mils (0.25 to 0.64 cm) in thickness or greater.--

Please replace the paragraph beginning at page 21, line 27 with the following amended paragraph:

--Silver salts of compounds containing mercapto or thione groups and derivatives thereof can also be used. Preferred examples of these compounds include silver 3-mercapto-4-phenyl-1,2,4-triazolate, silver 2-mercaptobenzimidazolate, silver 2-mercapto-5-aminothiadiazolate, silver 2-(S-ethylglycolamido)benzothiazolate; silver salts of thioglycolic acids such as silver salts of S-alkyl thioglycolic acids wherein the alkyl group has from 12 to 22 carbon atoms; silver salts of dithiocarboxylic acids such as silver dithioacetate, silver thioamidoate, silver 1-methyl-2-phenyl-4-thiopyridine-5-carboxylate, silver triazinethiolate, silver 2-sulfidobenzoxazole; and silver salts as disclosed in U.S. Patent No. 4,123,274, which is incorporated herein by reference. Furthermore, silver salts of a compound containing an amino group can be used. Examples of these compounds include silver salts of benzotriazoles, such as silver benzotriazolate; silver salts of alkyl-substituted benzotriazoles such as silver methylbenzotriazolate, etc.; silver salts of halogen-substituted benzotriazoles such as silver 5-chlorobenzotriazolate, etc.; silver salts of



carboimidobenzotriazoles, etc.; silver salts of 1,2,4-triazoles and 1-H-tetrazoles as described in U.S. Patent No. 4,220,709; silver salts of imidazoles; and the like. The concentration of the thermographic developed silver material is chosen so as to achieve the desired optical density, i.e., so that the layer prevents the transmission of actinic radiation to the photopolymerizable layer. In general, a transmission optical density greater than 2.0 is preferred. The concentration of thermographic developed silver material ~~which~~ that is needed, decreases with increasing thickness of the layer. Preferably, the light-insensitive silver salt material is present in an amount of about 5 to 60% by weight and more preferably, from about 30 to 50% by weight, based upon the total weight of the thermographic silver emulsion layer. The reducing agent in the thermographic imaging system provides improved image density at the short exposure times found when the thermographic media is heated using an infrared laser. In general, the thermographic element of the invention can provide an image of superior sharpness and density when exposed to an infrared laser at a sufficient intensity and for a sufficient time to provide total energy of about 250 to 650 mJ/cm<sup>2</sup>. The total energy delivered will depend on a variety of factors known to those of skill in the art, such as laser power, the size of the spot created by the laser on the imaging plane, the time of exposure, and so on. Notably, superior images can be obtained with very short exposure times, i.e. about 10 microseconds or less. Under conditions sufficient to provide total energy of about 300 to 500 mJ/cm<sup>2</sup>, the thermographic element of the invention can provide a sharp image of a spot as small as 5 micrometers. The thermographic element of the invention, containing reducing agent, generally has a  $D_{\min}$  in the ultraviolet range (365 to 410 nm) of less than about 0.2, preferably less than about 0.15 and a  $D_{\max}$  in the ultraviolet range of greater than about 2.5, preferably greater than about 3.0. The reducing agent is present in an amount of about 5 to 25 wt%, preferably about 10 to 20 wt% based on the total weight of the thermographic silver emulsion layer. Auxiliary reducing agents or development accelerators that are known in the art may be optionally included in the thermographic silver emulsion layer depending upon the silver source used.--

Please replace the paragraph beginning at page 24, line 3 with the following amended paragraph:

--Hindered bisphenol developers are compounds that contain only one hydroxy group on a given phenyl ring and have at least one additional substituent located *ortho* to the hydroxy group. They differ from traditional photographic developers ~~which~~ that contain two hydroxy groups on the same phenyl ring (such as is found in hydroquinones). Hindered phenol developers may contain more than one hydroxy group as long as they are located on different phenyl rings. Hindered phenol developers include, for example, binaphthols (i.e., dihydroxybinaphthyls), biphenols (i.e., dihydroxybiphenyls), bis(hydroxynaphthyl)methanes, bis(hydroxyphenyl)methanes, hindered phenols, and naphthols.--

Please replace the paragraph beginning at page 26, line 15 with the following amended paragraph:

--The thermographic silver emulsion layer(s) found in the present invention also may employ and preferably does employ a binder. The binder is a polymeric material ~~which~~ that should satisfy several requirements: (1) The binder should be removable from the surface of the photopolymerizable layer after the imaging of the flexographic plate. This condition is met if the binder is soluble, swellable or dispersible in the developer solvent for the photopolymerizable layer. The binder may also be removed in a separate step, e.g., the binder can be soluble, swellable or dispersible in a second solvent that does not affect the polymerized areas of the photopolymerizable layer. ~~(3)~~ (2) The binder should be one in which the other materials in the infrared-sensitive layer can be uniformly dispersed. ~~(4)~~ (3) The binder should be capable of forming a uniform coating on the flexographic printing surface. Any conventional polymeric binder known to those skilled in the art can be utilized. For example, the binder may be selected from many of the well-known natural and synthetic resins such as gelatin, polyvinyl acetals, polyvinyl chloride, polyvinyl acetate, cellulose acetate, polyolefins, polyesters, polystyrene, polyacrylonitrile, polycarbonates, and the like. Copolymers and terpolymers are, of course, included in these definitions, examples of which, include, but are not limited to, the polyvinyl aldehydes, such as polyvinyl acetals, polyvinyl butyrals, polyvinyl formals, styrene/maleic anhydride copolymers, and vinyl copolymers. Polyvinyl acetate and polyvinyl butyral are

preferred resins. Preferably, the binder should be present in an amount in the range of about 10 to 60 wt.% and more preferably about 15 to 40 wt.% based upon the total weight of the thermographic silver emulsion layer.--

Please replace the paragraph beginning at page 27, line 5 with the following amended paragraph:

--A plasticizer can be added to adjust the film forming properties of the binder. The plasticizer should be present in an amount effective for the intended purpose ~~which~~ that depends on the properties of the binder, the plasticizer, and the other components of the layer. In general, the amount of plasticizer, when present, is 1-25% by weight, and more preferably 2 - 15% based on the weight of the layer.--

Please replace the paragraph beginning at page 28, line 1 with the following amended paragraph:

--The infrared-sensitive layer is generally applied using any known coating technique, particularly methodologies that do not require elevated temperatures, including spray coating, extrusion coating, bar coating, wire wound rod coating, screen coating, curtain coating, die slot coating, meniscus coating, roller coating or gravure coating. The element is prepared by removing the coversheet from the photopolymerizable layer, the ~~infra-red~~ infrared sensitive layer is then sprayed or coated onto this and dried prior to laser imaging.--

Please replace the paragraph beginning at page 28, line 14 with the following amended paragraph:

--Alternatively, the two layers can all be prepared on temporary coversheets: the photopolymerizable layer by extrusion and calendering or pressing in a mold; and the infrared-sensitive layer by coating. The final element is prepared by removing the temporary coversheet from the photopolymerizable element, applying the infrared-sensitive layer such that the infrared-sensitive layer is adjacent to the photopolymerizable layer. The composite structure

is laminated together as each new layer is added or at one time for all the layers. The temporary coversheet on the infrared-sensitive layer can remain in place for storage, but must be removed prior to imaging, in those cases where it has been selected to be infrared opaque. The process of the invention involves:

(1) imagewise thermographically developing the infra red sensitive layer (d) of the element described above to form a mask; during the thermographic step, material in the infrared-sensitive layer is developed and rendered opaque (at least an optical density of 3.0 to the electromagnetic radiation to which the photosensitive layer is sensitive), in the areas exposed to the infrared laser radiation. The areas exposed to laser radiation in the infrared-sensitive layer correspond to the areas of the photopolymerizable layer ~~which~~ that will be washed out in the formation of the final printing plate.

(2) overall exposing (referred to as flood exposing) the mask and thereby exposing those areas of the photosensitive element to actinic radiation where the exposing radiation penetrates through transmissive regions of the mask to form a product comprising the mask over an imagewise exposed photosensitive layer (~~e.g.,~~ e.g., the photosensitive layer having effectively a latent image from the exposure); and

(3) ~~treating the product of step (2) with at least one developer solution~~ treating the product of step (2) with at least one developer solution to remove all of or part of (i) the infrared-sensitive layer (and optionally or preferably all of the regions of the infrared sensitive layer, including those that have been developed to opacity and those areas that have not been developed to opacity by thermal treatment, and (ii) the areas of the photopolymerizable layer (b) which were not exposed to actinic radiation.--

Please replace the paragraph beginning at page 29, line 14 with the following amended paragraph:

--The first step in the process of the invention is to image the thermographic layer (d) to form a mask. This exposure is given to the side of the photosensitive element bearing the infrared-sensitive layer. Although laser address of the thermographic layer is preferred, the layer may be addressed by thermal printing with a printing head with appropriate selection of properties on the surface of the thermographic layer to avoid sticking of the head to the layer. If a temporary coversheet is present in the element, it can optionally be removed prior to the exposure step, or left on during exposure if the temporary cover sheet is transmissive to infrared radiation. The exposure can be carried out using various types of infrared lasers. Diode lasers emitting in the region of 750 to 880 nm offer substantial advantages in terms of their small size, low cost, stability, reliability, ruggedness and ease of modulation, but any infrared radiation (e.g., up to 1200 nm) may be used with appropriate sensitization of the layer. Diode lasers emitting in the range of 780 to 850 nm may be used to advantage. Such lasers are commercially available from, for example, Spectra Diode Laboratories (San Jose, Calif.). YAG lasers emitting at about 1064 nm are also very effective. The next step in the process of the invention is to overall expose the mask to imagewise expose the photosensitive element to actinic radiation through the radiation transparent or transmissive areas of the mask. The type of radiation used is dependent on the type of sensitivity in the photopolymerizable layer, which tends to be dependent upon the particular photoinitiator in the photopolymerizable layer. The radiation-opaque material created by the imaging/development process in the infrared sensitive layer that remains on top of the photopolymerizable layer prevents the material beneath areas that have developed an opacity from the thermographic imaging process from being exposed to the radiation and hence those areas covered by the radiation-opaque material do not polymerize. The areas not covered by the radiation-opaque material that have developed an opacity from the thermographic imaging process are exposed to actinic radiation and polymerize. Any conventional sources of actinic radiation can be used for this exposure step. Examples of suitable visible or UV sources include carbon arcs, mercury-vapor arcs, fluorescent lamps, electron flash units, electron beam units and photographic flood lamps. The most suitable sources of UV radiation are the mercury-vapor lamps, particularly the sun lamps. A standard radiation source is the Sylvania 350 Blacklight fluorescent lamp (FR 48T12/350 VL/VHO/180, 115 w) ~~which~~ that has a central wavelength of

emission around 365 nm. Lasers, such as excimer lasers, may be used for an exposure over the entire surface of the photomask, but that is not the preferred mechanism at this time. It is contemplated that the imagewise exposure to infrared radiation and the overall exposure of the phototool to actinic radiation can be carried out in the same equipment. It is preferred that this be done using a drum supporting system for the medium, i.e., the photosensitive element is mounted on a drum which is rotated to allow for exposure of different areas of the element. The drum rotates and the exposing system raster scans across the rotating surface of the element, either while the drum is rotating (preferred) or during sequential position stops in the rotation of the drum. The actinic radiation exposure time for exposing the entire thermographic layer or the photosensitive layer on the element can vary from a few seconds to minutes, depending upon the intensity and spectral energy distribution of the radiation, its distance from the photosensitive element, and the nature and amount of the photopolymerizable composition. Typically for the exposure of the photothermographic layer, a mercury vapor arc or a sunlamp is used at a distance of about 0.5 to about 60 inches (1.25 to 153 cm) from the photosensitive element. Exposure temperatures are preferably ambient or slightly higher, i.e., about 20° to about 35°C. The process of the invention usually includes a back exposure or backflash step on the photosensitive layer to harden the floor of the photosensitive layer. This is a blanket exposure to actinic radiation through the support (which should therefore be transmissive of radiation to which that layer is photosensitive). It is used to create a shallow layer of polymerized material, or a floor, on the support side of the photopolymerizable layer and to assist in sensitizing the photopolymerizable layer. The floor provides improved adhesion between the photopolymerizable layer and the support, helps highlight dot resolution and also establishes the depth of the plate relief. The backflash exposure can take place before, after or during the other imaging steps. It is preferred that the backflash take place just prior to the imagewise exposure to infrared laser radiation on the infrared-sensitive layer side of the element. Any of the conventional radiation sources discussed above can be used for the backflash exposure step. Exposure time generally range from a few seconds up to about a minute. Following overall exposure to UV radiation through the mask formed by the actinic radiation-opaque material, the image is developed by washing with a suitable developer. Development is usually carried out at about room temperature. The

developers can be organic solvents, aqueous or semi-aqueous solutions. The choice of the developer will depend on the chemical nature of the photopolymerizable material to be removed. Suitable organic solvent developers include aromatic or aliphatic hydrocarbon and aliphatic or aromatic halohydrocarbon solvents, or mixtures of such solvents with suitable alcohols. Other organic solvent developers have been disclosed in published German Application 38 28 551. Suitable semi-aqueous developers usually contain water and a water miscible organic solvent and an alkaline material. Suitable aqueous developers usually contain water and an alkaline material. Other suitable aqueous developer combinations are described in U.S. Patent No. 3,796,602. Development time can vary, but it is preferably in the range of about 2 to 25 minutes. Developer can be applied in any convenient manner, including immersion, spraying and brush or roller application. Brushing aids can be used to remove the unpolymerized portions of the composition. However, washout is frequently carried out in an automatic processing unit that uses developer and mechanical brushing action to removed the unexposed portions of the plate, leaving a relief constituting the exposed image and the floor. A pre-development step may be necessary if the infrared-sensitive layer is not removable by the developer solvent. An additional developer, which does not effect the polymerized photosensitive material can be applied to remove the infrared-sensitive layer first.--

Please replace the paragraph beginning at page 32, line 1 with the following amended paragraph:

--The ~~infra-red~~ infrared sensitive layer could also be removed by peeling if it is covered by an additional support. Following solvent development, the relief printing plates are generally blotted or wiped dry, and then dried in a forced air or infrared oven. Drying times and temperatures may vary, however, typically the plate is dried for 60 to 120 minutes at 60°C. High temperatures are not recommended because the support can shrink and this can cause registration problems.--

Please replace the paragraph beginning at page 32, line 7 with the following amended paragraph:

--Alternatively, the photopolymerisable layer can be developed according to the method of Martens U.S. Patent No. 5,175,072. Contacting the imagewise irradiated composition with an absorbent layer which can absorb the infra-red layer and the ~~unirradiated~~ un-irradiated photohardenable composition when it has been heated between 40 degrees C and 200 degrees C. That temperature is sufficiently high to enable the composition into the absorbent layer followed by removal of the absorbent material and the material absorbed into it, revealing an image.--

Please replace the paragraph beginning at page 32, line 13 with the following amended paragraph:

--Most flexographic printing plates are uniformly post-exposed to ensure that the photopolymerization process is complete and that the plate will remain stable during printing and storage. This post-exposure step utilizes the same radiation source as the main exposure. Detackification is an optional post-development treatment ~~which~~ that can be applied if the surface is still tacky, such tackiness not generally being removed in post-exposure. Tackiness can be eliminated by methods well known in the art, such as treatment with bromine or chlorine solutions. Such treatments have been disclosed in, for example, Gruetzmacher U.S. Patent No. 4,400,459, Fickes et al., U.S. Patent No. 4,400,460 and German Patent 28 23 300. Detackification can also be accomplished by exposure to radiation sources having a wavelength not longer than 300 nm, as disclosed in European Published Patent Application 0 017927 and Gibson U.S. Patent No. 4,806,506. These elements can be used to particular advantage in the formation of seamless, continuous printing elements. The photopolymerizable flat sheet elements can be reprocessed by wrapping the element around a cylindrical form, usually a printing sleeve or the printing cylinder itself, and fusing the edges together to form a seamless, continuous element. In a preferred method, the photopolymerizable layer is wrapped around the cylindrical form and the edges joined. One process for joining the edges has been disclosed in German patent DE 28 44 426. The photopolymerizable layer can then be spray coated with the infrared-sensitive layer. Continuous printing elements have applications in the flexographic printing of continuous designs such as in wallpaper, decoration and ~~gift-wrapping~~ gift-wrapping



paper. Furthermore, such continuous printing elements are well-suited for mounting on conventional laser equipment. The sleeve or cylinder on which the printing element is wrapped when the edges are fused, can be mounted directly into the laser apparatus where it functions as the rotating drum during the laser exposure step. Unless otherwise indicated, the term "flexographic printing plate or element" encompasses plates or elements in any form suitable for flexographic printing, including, but not limited to, flat sheets and seamless continuous forms, including flat plates pre-mounted onto sleeves. All publications/references mentioned herein are hereby incorporated by reference unless otherwise indicated. The following examples are provided to illustrate the practice of this invention and not to limit it in any manner. Unless otherwise noted percentages are by weight.--